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ABSTRACT

Many chemists want to be effective teachers but have little background in psychology or education on which to build successful practices. The primary audience for this book is chemistry teachers at the secondary and tertiary levels, and its purpose is to encourage readers to construct a new understanding of how their students learn. This book is not a review of research on teaching chemistry, but it synthesizes and summarizes a great deal of research that comes from literature that is not commonly read by science educators. Chapters include: (1) "The People"; (2) "A Framework for Discussion"; (3) "Eternal Verities"; (4) "Intelligence"; (5) "How We Learn"; (6) "Implications for Teaching"; (7) "Problem Solving"; (8) "Teaching Problem Solving"; (9) "Concept Learning"; (10) "Analyzing Concepts to Clarify Their Meaning"; (11) "Difficulties in Teaching Concepts"; (12) "Relationships among Concepts: Propositions, Principles, and Rules"; (13) "The Role of Language in Teaching Chemistry"; (14) "Generalized Intellectual Skills"; (15) "Scientific Reasoning"; (16) "Teaching Generalized Intellectual Skills"; (17) "Values in Science Teaching"; (18) "Motivation and Chemistry Teaching"; and (19) "Promoting Task Involvement and Intrinsic Motivation." Appendices include concept analyses for mib, concept, atom, element, mole, mixture, weight, mass, chemical symbol, and melting; selected Piagetian tasks; recent research on Piaget's Stage Theory; and books related to intellectual development. Contains 390 references. (JRH)

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